AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (Previously Presented): A process for producing a foamable crosslinked polymer, comprising:

polymerizing a mixture comprising

(A) 30-70 parts by weight of methacrylic acid,

30-60 parts by weight of methacrylonitrile,

0-30 parts by weight of other monomers having vinyl unsaturation,

(B) 0.01-4.99 parts by weight of tert-butyl methacrylate,

(C) 0.01-10 parts by weight of blowing agent,

(D) 0.01-10 parts by weight of crosslinking agent,

(E) 0.01 to 2 parts by weight of a polymerization initiator, and

(F) 0 to 20 parts by weight of a conventional additive,

in bulk to give a polymer in the form of a sheet;

wherein said sheet is optionally subjected to the following treatment:

heat-conditioning and then foaming at temperatures of from 150 to 250°C.

Claim 2 (Canceled):

Claim 3 (Currently Amended): A foamable crosslinked polymer, comprising <u>in polymerized form</u>:

(A) 30-70 parts by weight of methacrylic acid,

30-60 parts by weight of methacrylonitrile,

0-30 parts by weight of other monomers having vinyl unsaturation,

(B) 0.01-4.99 parts by weight of tert-butyl methacrylate,

(C) 0.01-10 parts by weight of blowing agent,

(D) 0.01-10 parts by weight of crosslinking agent,

(E) 0.01 to 2 parts by weight of a polymerization initiator, and

(F) 0 to 20 parts by weight of a conventional additive.

Claim 4 (Canceled):

Claim 5 (Previously Presented): A poly(meth)acrylimide foam which is obtained via foaming of a foamable polymer obtained according to the process of Claim 1.

Claim 6 (Previously Presented): A laminated material comprising a layer of a poly(meth)acrylimide foam according to Claim 5.

Claim 7 (Previously Presented): A vehicle, comprising:

the poly(meth)acrylimide foam according to Claim 5;

wherein said vehicle is selected from the group consisting of a motor vehicle, a rail vehicle, a watercraft, an aircraft or a spacecraft.

Claim 8 (Previously Presented): A machine component comprising the poly(meth)acrylimide foam according to Claim 5.

Claim 9 (Previously Presented): An antenna comprising the poly(meth)acrylimide foam according to Claim 5.

Claim 10 (Previously Presented): An X-ray table comprising the poly(meth)acrylimide foam according to Claim 5.

Claim 11 (Previously Presented): A loudspeaker comprising the poly(meth)acrylimide foam according to Claim 5.

Claim 12 (Previously Presented): A pipe comprising the poly(meth)acrylimide foam according to Claim 5.

Claim 13 (Previously Presented): The process for producing the foamable crosslinked polymer according to Claim 1, wherein said sheet is heat-conditioned and foamed.

Claims 14-19 (Canceled):

Claim 20 (Canceled):

Claim 21 (Canceled):

Claim 22 (Previously Presented): The process for producing the foamable crosslinked polymer according to Claim 1, comprising said foaming to obtain a foam having extremely fine and uniform pore structure.

Claim 23 (Previously Presented): The process for producing the foamable crosslinked polymer according to Claim 1, wherein said foamable polymer has a molar mass of >600 kDa.

Claim 24 (Previously Presented): The process for producing the foamable crosslinked polymer according to Claim 22, wherein said foam is a fine-pore foam having a density in the range from 30 to 300 kg/m^3.

Claim 25 (Previously Presented): The foamable crosslinked polymer according to Claim 3, having a molar mass of >600 kDa.

Claim 26 (Previously Presented): The poly(meth)acrylimide foam according to Claim 5, having extremely fine and uniform pore structure.

Claim 27 (Previously Presented): The poly(meth)acrylimide foam according to Claim 5, wherein said foamable polymer has a molar mass of >600 kDa.

Claim 28 (Previously Presented): The poly(meth)acrylimide foam according to Claim 5, wherein said foam is a fine-pore foam having a density in the range from 30 to 300 kg/m^3.

Claim 29 (New): The process for producing the foamable crosslinked polymer according to Claim 1, comprising said foaming to obtain a foam having a pore size of 5-35μm.

Claim 30 (New): A process for producing a foamable crosslinked polymer, comprising:

polymerizing a mixture comprising

(A) 30-70 parts by weight of methacrylic acid,

30-60 parts by weight of methacrylonitrile,

0-30 parts by weight of other monomers having vinyl unsaturation,

(B) 0.01-4.99 parts by weight of tert-butyl methacrylate,

(C) 0.01-10 parts by weight of blowing agent,

(D) 0.01-10 parts by weight of crosslinking agent,

(E) 0.01 to 2 parts by weight of a polymerization initiator, and

(F) 0 to 20 parts by weight of a conventional additive,

in bulk to give a polymer in the form of a sheet;

wherein said sheet is subjected to the following treatment:

heat-conditioning and then foaming at temperatures of from 150 to 250°C to obtain a foam having extremely fine and uniform pore structure having a pore size of 5-35 μm.

Claim 31 (New): A foamable crosslinked polymer, comprising in polymerized form:

(A) 30-70 parts by weight of methacrylic acid,

30-60 parts by weight of methacrylonitrile,

0-30 parts by weight of other monomers having vinyl unsaturation,

(B) 0.01-4.99 parts by weight of tert-butyl methacrylate,

(C) 0.01-10 parts by weight of blowing agent,

(D) 0.01-10 parts by weight of crosslinking agent,

(E) 0.01 to 2 parts by weight of a polymerization initiator, and

(F) 0 to 20 parts by weight of a conventional additive;

wherein when said polymer is subjected to heat-conditioning and then foaming at temperatures of from 150 to 250°C, a foam having extremely fine and uniform pore structure having a pore size of 5-35 μm is obtained.

Claim 32 (New): The process for producing the foamable crosslinked polymer according to Claim 1, wherein said mixture comprises (B) 1 to 2 parts by weight of tert-butyl methacrylate.

Claim 33 (New): The process for producing the foamable crosslinked polymer according to Claim 30, wherein said mixture comprises (B) 1 to 2 parts by weight of tert-butyl methacrylate.

Claim 34 (New): The foamable crosslinked polymer according to Claim 3, comprising (B) 1 to 2 parts by weight of tert-butyl methacrylate.

Claim 35 (New): The foamable crosslinked polymer according to Claim 31, comprising (B) 1 to 2 parts by weight of tert-butyl methacrylate.